

program participants were representative of the area's population ages 65 years and older.

• All data generated from the pilot program would be analyzed for statistical significance. In addition, a multivariate regression analysis would be done on the demographic factors (age, sex, and self-reported health status) to learn whether any of these variables can predict potential drug misuse among the elderly.

## Discussion

Reducing the potential among older Americans for adverse interactions between OTC and prescription drugs would improve the quality of health care and, ultimately, lower the costs of health care as well. Improved surveillance of drug use among the elderly could reduce emergency room use and physician visits for treatment of symptoms associated with drug misuse. Those reductions would save the patients, taxpayers, and third party agents \$70-\$315 million a year (11).

This program would be attractive also to major chains of retail pharmacies. At minimal expenditures and labor, such a system could be expanded to all drugstores in the chain and their patrons. And, because all local terminals would be linked to the chain's central computer, customers purchasing drugs would be assured of such quality checks at any drugstore in the chain. Therefore, the chain would profit from increased goodwill with customers, increased OTC drug sales, and decreased numbers of drugs returned because of adverse side effects. Further, this program could

achieve a major public health goal at no expense to the government: improved health care to many Americans.

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## Smokeless Tobacco Reduction Program

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## Synopsis.....

*To reduce the incidence and prevalence of oral cancer, the Smokeless Tobacco Reduction Program will consist of a mass media campaign, public oral screening, and a week-long school health program for 350 students in the seventh, eighth, and ninth grades in Willows, Glenn County, CA. Mass media will include radio, television, newspapers, posters, and literature.*

*The program will use resources of the public health department and junior high school; it will also depend on 8 teachers and 25 peer leaders, all trained in the program.*

*Reducing the use of smokeless tobacco is the program's objective. If that goal is achieved, the program will reduce oral cancers in the target population by 75 percent within 10 years. The incidence of leukoplakia will be reduced by 50 percent within 3 years of the end of the program.*

*By the end of the program, 90 percent of the target population will be able to identify warning signs of oral cancer and leukoplakia, and 85 percent of the students will no longer believe that use of smokeless tobacco is less harmful than smoking. As a result of the program, use of smokeless tobacco will not be viewed favorably by 80 percent of the target population; usage will be regarded as socially unacceptable.*

**O**RAL CANCER HAS BECOME A PREVALENT health problem in the United States. It was estimated that in 1985 approximately 29,000 new cases of oral cancer would occur, resulting in 9,500 deaths (1). Oral cancer can be attributed to both nonbehavioral and behavioral causes. Nonbehavioral causes include chronic irritations in the mouth, such as jagged teeth, ill-fitting dentures, and projecting fillings. Behavioral causes include smoking of cigars, pipes, and cigarettes and use of smokeless tobacco. Cigarettes, pipes, and cigars produce hydrocarbons, which induce buccal carcinomas. Dipping snuff and chewing tobacco appear to be causally related to the development of mouth cancer. The chemical nitrosonornicotine, which is found in smokeless tobacco, possesses carcinogenic activity (2). The estimated risk of cancer of the soft oral tissues is almost 50 times greater in long-term users of smokeless tobacco than in nonusers.

A June 1984 tobacco report by the U.S. Department of Agriculture reported that cigarette output for 1983-84 had decreased 2.5 percent from 1983 (1). Consumption declined by 3.5 percent. However, the numbers of cans of snuff sold more than doubled in that period. Since 1974, consumption grew from 190 million to 463.5 million cans sold, a dramatic increase in smokeless tobacco use (3). The incidence of oral cancer is anticipated to increase as the number of users increases, especially as Americans seek an alternative to cigarettes.

To lower the incidence and prevalence of oral cancer, the Smokeless Tobacco Reduction Program will attempt to reduce the use of smokeless tobacco. The program will aim to educate a target population about smokeless tobacco use and its consequences.

## **Definition and Documentation of Need**

Smokeless tobacco use is prevalent among teenagers. This prevalence can be attributed in part to mass media promotion of smokeless tobacco. Through advertising, consumers develop inappropriate beliefs and attitudes regarding the use of smokeless tobacco. Commercials using well-known sports personalities and entertainers encourage an attractive, masculine, healthful, youthful, and "macho" attitude about smokeless tobacco. Advertisements in the media have suggested that smokeless tobacco could be accepted as a less harmful substitute for cigarette smoking, claiming that snuff lacks certain tars and gases such as carbon monoxides, oxides of nitrogen, and other toxic combustion byproducts. By mailing free samples of smokeless tobacco, marketers have focused on youth with the development of Skoal Bandits, which uses convenient disposable pouches to make chewing easier.

Parents and adults are also victims of media coverage. Most parents lack accurate information and knowledge about the consequences of chewing and therefore allow their children to use smokeless tobacco.

Most teens view smokeless tobacco as a healthy alternative to smoking. Common statements, like "It can't hurt you athletically like cigarettes can" and "Baseball players use it all the time," are misconceptions that can be attributed to advertising techniques that use popular sports figures to promote products (3). The current literature provides few accurate statistics on teenage smokeless tobacco users. Although data are limited, numerous authorities, politicians, and the media have stated that an epidemic of smokeless tobacco use exists among teenagers.

## Target Group

The significance of smokeless tobacco use among teenagers provided the criteria for choosing this group. Oral cancer can be reduced through preventive education measures. Such preventive measures entail dealing with the target population's special characteristics to clarify their knowledge, beliefs, and values. With accurate knowledge and informed beliefs and values, this group would be likely to make responsible and intelligent decisions about their health behaviors.

Teenagers are more mature than primary grade children and assume greater responsibility for their own activities at school, in the neighborhood, and at home. These children are also critical of the actions of others and may be susceptible to peer pressure (4). Socially, there will be a tendency for the more mature to group together on the basis of interests, with peer group acceptance taking precedence over adult approval (5). The development of an educational program was based on the special needs of the target group, which include peer, parental, and community support in addition to clarification of knowledge, values, beliefs, and attitudes.

The target community in which this plan is based on Willows, CA, which has a population of about 5,000 persons. It is considered a rural farming community, and the Manville Fiberglass Corporation has a large fiberglass production plant there. Many of Willow's citizens are blue-collar workers or have farm-related occupations. The population consists largely of white lower-to-middle class families with average levels of education. The target group consists of 350 students in the seventh, eighth, and ninth grades. The program developed can be adjusted to another area, because both urban and rural communities generally have access to television, radio, health departments, and schools, which are all excellent for the education of the chosen target population.

## Goals and Objectives of the Program

**Program goal.** The prevalence and incidence of oral cancer will be reduced by decreasing the use of smokeless tobacco by seventh, eighth, and ninth graders.

**Health objectives.** Within 10 years, oral cancer in the target population will be reduced by 75 percent from expected rates as a result of the decreasing use of smokeless tobacco. The incidence of

leukoplakia in the target population will be reduced by 50 percent of the expected rate within 3 years after the program ends.

**Behavioral objectives.** One year after the Smokeless Tobacco Education Program, there will be an 80 percent reduction of smokeless tobacco use in the target group. After 3 years, smokeless tobacco use by the target population will be reduced by 75 percent.

### Predisposing factor objectives.

*Knowledge.* By the end of the program, 90 percent of the target population will be able to identify warning signs of leukoplakia and oral cancer.

*Beliefs.* By the end of the program, 85 percent of the target population will not believe use of smokeless tobacco is less harmful than smoking.

*Values.* As a result of the program, 85 percent of the target population will value their health and realize the importance of health maintenance.

*Attitudes.* As a result of the program, smokeless tobacco use will not be viewed as macho, attractive, healthful, or fun by 80 percent of the target population; instead, it will be regarded as socially unacceptable.

### Enabling factor objectives.

- Within Glenn County, smokeless tobacco cannot be marketed by television advertisements or by distribution of free samples.
- Within the county, 100 percent of smokeless tobacco products must have a government warning label.
- Within the county, the health department will provide 100 percent of the oral screenings free of charge in the schools and in the community.
- Within the county, it will be against the law for anyone under the age of 18 to purchase smokeless tobacco.

### Reinforcing factor objectives.

- Ninety percent of the parents or guardians of the target population will discourage the target population from using smokeless tobacco.
- Ninety-five percent of the teachers will identify their pupils who use smokeless tobacco and either

approach them personally or refer them to a counselor trained to deal with this situation.

- Ninety-five percent of teachers will discourage students from chewing tobacco.
- Seventy-five percent of the peers will be supportive of the decision not to chew smokeless tobacco.
- Twenty-five peers will be available for counseling and discouraging smokeless tobacco use.

### Project Design

Implementation of the program will begin with a development of an Health Education Curriculum Committee. Gaining support for and assistance from persons involved in the project is the goal of this group. Through their feedback, problems can be anticipated and dealt with prior to implementation of the project. The sequence of events will be as follows:

*Week 1.* Communication with public, City Council meeting on the issue, and teacher training.

*Week 2.* Communication with public, screening at county public health department, and peer leader training.

*Week 3.* Communication with public, School Health Program, and screening at county public health department.

*Week 4.* Communication with public and evaluation of process and impact.

Future local and State legislation on smokeless tobacco issues will result from community and political action. City council meetings and television and radio news spots on the subject of smokeless tobacco will increase community interest and involvement.

In addition to generating community interest and involvement, the mass media campaign will also provide accurate information about smokeless tobacco use and its consequences. Flyers, pamphlets, and posters will be distributed at public places to offer the community literature about oral cancer, risk factors, and warning signs. To offer diagnostic services, 2 days for oral screening of the general public have been set aside during the program. If oral cancer is identified, patients will be referred to a local dentist, clinic, or hospital. No treatment by a physician or dentist will be provided without the participant's permission. Protection of participants will include awareness of project steps by parents, school personnel, school board, and community.

Prior to the week-long School Health Program, 12 teachers and 25 peer leaders will be trained. Teachers from the seventh, eighth, and ninth grades will attend a 1-day workshop that will cover the curriculum and project goals. Peer leaders will

### Smokeless Tobacco Reduction Program Budget

#### Personnel

Program personnel:	
Program planner (100 percent of time, 3 months) . . . . .	\$1,000
Health educator (50 percent of time, 3 months) . . . . .	400
Secretary-receptionist (25 percent of time, 3 months) . . . . .	240
Subtotal . . . . .	\$1,640
Benefits (30 percent of salaries) . . . . .	492
Total . . . . .	\$2,132

#### Consultants:

Dentist (10 hours at \$100 per hour) . . . . .	\$1,000
School nurse (7 hours at \$25 per hour) . . . . .	175
Public health nurse (16 hours at \$20 per hour) . . . . .	320
Evaluator (32 hours at \$25 per hour) . . . . .	900
Total . . . . .	\$2,395

#### Equipment

Computer rental . . . . .	\$100
Telephone . . . . .	50
Copy machine rental . . . . .	100
Total . . . . .	\$250

#### Materials and supplies

Office supplies . . . . .	\$150
Printing . . . . .	200
Video cassettes . . . . .	100
Balloons . . . . .	15
Total . . . . .	\$465

Total program cost . . . . . \$5,242

attend a 1-hour session that will explain the program's purpose and expectations of the peer leaders.

In the School Health Program, there will be numerous educational activities dealing with the target population's attitudes, knowledge, values, and needs. Various educational devices such as lectures, audiovisual aids, small-group activities, and role-playing will be used.

After completion of the entire program, an evaluator will assess each step in the process and the overall impact of the Smokeless Tobacco Reduction Program. The evaluator will look at logs that state the numbers of people screened and literature distributed to measure the efficiency of activities in the program. An experimental method will be used to measure the overall impact of the

*'If oral cancer is identified, patients will be referred to a local dentist, clinic, or hospital. No treatment by a physician or dentist will be provided without the participant's permission. Protection of participants will include awareness of project steps by parents, school personnel, school board, and community.'*

program. The budget for the entire program at Willows is \$5,242 (see box).

## **Methods**

**School Health Program.** To gain support and assistance for the program, an health education curriculum committee will be formed. The committee will consist of seventh, eighth, and ninth grade teachers; custodians; the school nurse; health educator; program facilitator; school principal; students; interested parents; health professionals—dentists and nurses; and health agencies—local representatives of the California Dental Society, American Cancer Society, public health department, and hospital.

Those persons selected for the educational program must teach seventh, eighth, or ninth grade and be well suited to a course of study development as judged by background, experience, and ability to work cooperatively.

The program will last 1 hour a day for 5 days during the first school period. Implementation of the School Health Program includes the following course of actions.

*Day 1.* A pretest will be given on oral cancer, leukoplakia, and chewing tobacco. Slides will be shown on oral cancer and leukoplakia. The presentation will include a discussion on warning signs of oral cancer and on what oral cancer is. Students will demonstrate the importance of personal health. "Health Myself," a film strip and cassette, will be used to introduce concepts in decisionmaking with regard to chewing tobacco.

The program's week-long contest will be explained. Students who accumulate the most stars in the contest will receive a reward such as going on a field trip. As an assignment, students must bring in for the next day at least two magazines, such as Newsweek, Field and Stream, or Sports Illustrated, with chewing tobacco advertisements.

*Day 2.* A videotape of advertising clips of athletes and celebrities promoting smokeless tobacco will be shown. Participants in a group activity will discuss why the athlete or celebrity is promoting smokeless tobacco. Peer leaders will assist each small group by producing a collage of smokeless tobacco advertisements. The class will vote on the best collage. Winners will receive a star.

Teachers will ask students to think of a bad habit and write it down as their assignment for the next day. Some suggested bad habits are chewing fingernails, eating sugar, cussing, and not washing hands. Each person who does this assignment will receive a star.

*Day 3.* "Adopt a Bad Habit" packets are distributed, and adoption papers are filled out. Students are paired off, and each pair is required to stay together all day and be supportive of each other. Various packages of chewing tobacco will be displayed; with each type of chewing tobacco, a picture will be shown of oral cancer. Ways to resist peer pressure will be given in a lecture, and there will be role-playing between the teacher and peer leader to demonstrate techniques of saying no. A group activity will be assigned to do a skit with peer leader.

*Day 4.* Participants will follow up on adopting a bad habit. Skits will be presented. The class will vote on the best skit, and the winning group(s) will receive a star. Participants will view a videotape, an edited version of the "60 Minutes" segment about Sean Marsee, an athletic teenager who developed oral cancer and died because he used smokeless tobacco. The importance of good breath, clean teeth, and healthy gums will be reviewed. Buttons that say "Kiss Me, I Don't Chew" will be passed out.

*Day 5.* An athlete from the community and an athletic trainer will meet with students in gym assembly. The trainer will talk about how chewing tobacco affects athletic performance; the athlete will discuss how chewing tobacco affected his performance. The speaker will explain why the use of chewing tobacco is just as serious as smoking. Contest winners are announced and prizes (gum) passed out. A posttest will be given.

**Communications with the public.** Two weeks before implementation of the program in schools, the communications expert will submit news spots to newspapers and radio and television stations that

serve the community. These news spots will address the health problems related to smokeless tobacco usage and will announce the dates of the oral screening in the health department. The mass media campaign consists of two television spots, four radio spots, 4 weeks of weekly newspaper columns, and two newspaper stories, as well as pamphlets, posters, and flyers.

Local representatives of the American Cancer Society are responsible for gathering volunteers for the media campaign. These volunteers will distribute the posters, flyers, and pamphlets throughout the community in locations such as the community hospital, local corporations, supermarkets, public health offices, social services, and Superior Court-house.

*Enabling factors.* There will be 2 days of free oral screening at the county health department for the general public. The county public health nurse will supervise and coordinate nurse volunteers from the local hospital. Media advertisements for free oral screening will stress the availability of materials and screening on other occasions as well as the 2 days during the program. The program planner will remain in close communication with the Glenn County assemblyman. The county supervisor will act as the program's representative on the State level to work for legislation that will deal with smokeless tobacco.

*Reinforcing factors.* One week prior to implementation of the School Health Program, peer leaders will be nominated and voted on in the classrooms in a process facilitated by the teachers. The chosen peer leaders will attend a 1-hour training class conducted by the health educator, who will emphasize the importance of being supportive of peers and familiarizing them with goals of the program and what the peer leaders' roles are in this program.

**Training of peer leaders and teachers.** To ensure proper implementation of the School Health Program, both peer leaders and school teachers will be trained by the health educator. The peer leaders will attend a 1-hour training session that covers leadership qualities and techniques. Goals and criteria for the peer leader activities will be explained. The peer leaders will learn how important their leadership is in supporting their fellow students.

The 1-day teacher training will consist of a condensed simulation of the week-long program.

*'A videotape will show advertising clips of athletes and celebrities promoting smokeless tobacco. Participants in a group activity will discuss why the athlete or celebrity is promoting smokeless tobacco.'*

The training workshop will follow the program's schedule in chronological order. During the workshop, guidelines, lesson plans, materials, and supplies will be provided to each teacher.

### **Evaluation Methods**

Throughout the School Health Program, each teacher will be asked to fill out a questionnaire after each session to obtain information on student responses to presentation, the number of students present, general comments about how teacher feels information and content were received, and quality of materials used.

Throughout the public screening, the county public health nurse will complete a log for each day of screening that covers (a) the number of persons screened, (b) the number of materials distributed, (c) general comments about impact of screening activity problems that arose with volunteers and community, (d) the number of referrals, and (e) the number of phone calls pertaining to subject matter.

An experimental two-group design will be used to evaluate the impact of the screening program. Willows will be compared with a community outside the county that is similar in size, socioeconomic status, and geographic setting. The control community will not receive the information through the media about the program that Willows will.

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